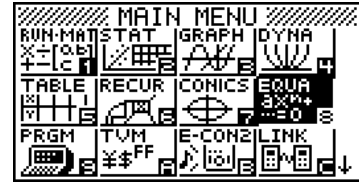


Integration and Differentiation using Solver.

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Select the **EQUA** mode from the **MAIN MENU** by using the arrow keys to highlight the **EQUA** icon and pressing **[EXE]** or press **[8]**.



The Solver mode lets you determine the value of any variable in a formula without having to manipulate the equation.

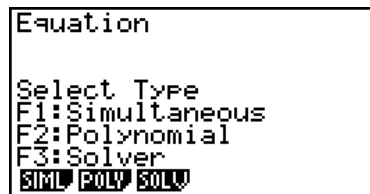
Select the SOLV (Solver) mode **[F3]**, and input the equation.

In the table of variables that appears on the display, input the values for each variable.

Select the variable for which you want to solve to obtain the solution.

"Lft" and "Rgt" indicate the left and right sides that are calculated using the solution.*

[Note: If you do not input an equals sign, the calculator assumes that the expression is to the left of the equals sign, and there is a zero to the right.]



Enter Solver **[F3]**



Clear the 'Eq:' area **[F2]** then **[F1]** for 'Yes'.

Example 1: Solve $\int_1^A x dx = 1$

Algebraically: $[\frac{x^2}{2}]_1^A = 1$

$$\left(\frac{A^2}{2}\right) - \left(\frac{1^2}{2}\right) = 1$$

$$\frac{A^2}{2} = \frac{3}{2}$$

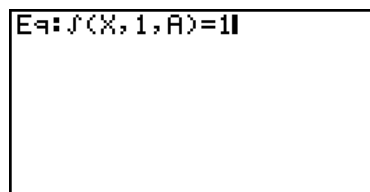
$$A = \sqrt{3} [=1.732(3d.p.)]$$



Select **[OPTN]**,

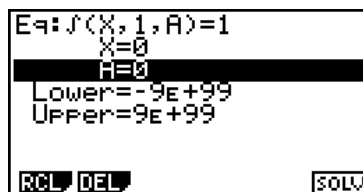


then **[F2]** for the **CALC**ulus tools.

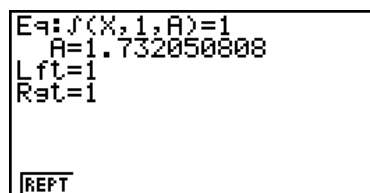


Enter the equation, **[F3]** for **dx**,

Set all variables to zero, i.e. 'X' and 'A', then select variable A by moving the cursor to highlight 'A'.



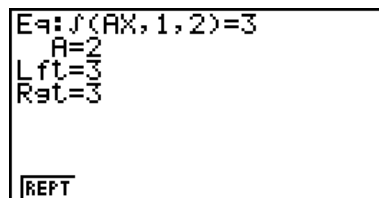
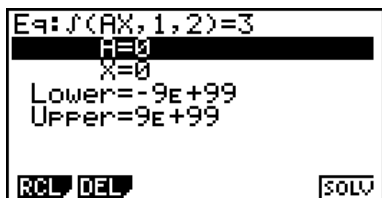
then press **[EXE]** to store the equation.



Press **[EXE]** or **[F6]** to **SOLVE**.

Example 2: Solve $\int_1^2 Ax dx = 3$

Algebraically: $\left[\frac{Ax^2}{2}\right]_1^2 = 3$
 $\left(\frac{A \times 2^2}{2}\right) - \left(\frac{A \times 1^2}{2}\right) = 3$
 $\frac{3A}{2} = 3$
 $A = 2$



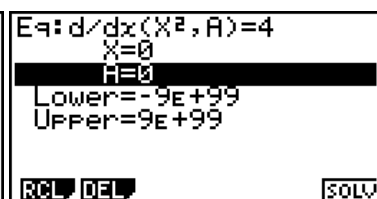
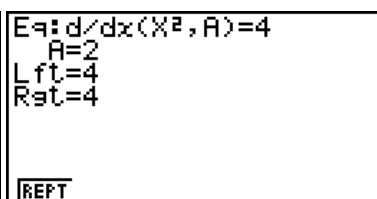
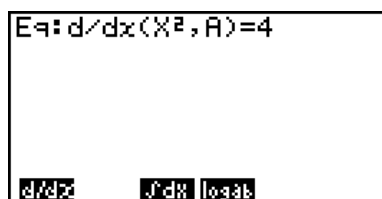
Example 3: Solve $\frac{dy}{dx} = 4$, when $y = x^2$ at $x = A$.

Algebraically: $\frac{dy}{dx} = 2x$, when $x = A$, $2A = 4$
 Therefore $A = 2$.



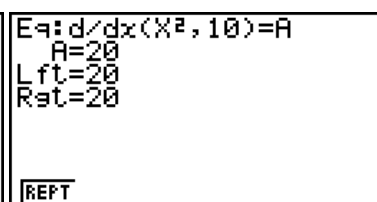
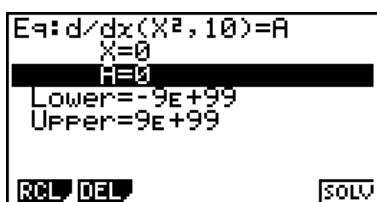
Select [OPTN], then [F2] for the CALCulus tools.

[F1] for d/dx



Example 4: Solve $\frac{dy}{dx} = A$, when $y = x^2$ at $x = 10$.

Algebraically: $\frac{dy}{dx} = 2x$, when $x = 10$ $\frac{dy}{dx} = 2 \times 10 = 20$.



Try:

1. Solve $\int_1^3 Ax + 1 dx = 24$
2. Solve $\int_0^6 x^2 + Ax dx = 15$
3. Solve $\frac{dy}{dx} = 6$, when $y = x + 2x^2$ at $x = A$.
4. Solve $\frac{dy}{dx} = 12$, when $y = x^2 + 2x - 1$ at $x = A$.

